

IN THE CLAIMS:

Please amend the Claims as follows:

1. **(Currently Amended)** A film-forming apparatus in which a gas mixture prepared in comprising:

~~a gas-mixing chamber is introduced into a film-forming chamber through a shower head to form a film on a substrate the apparatus comprising the gas-mixing chamber for admixing a raw gas and a reactive gas, the;~~

a film-forming chamber connected to the gas-mixing chamber, the;

a circular shower head disposed on the a top face of the film-forming chamber[[,]];

~~a stage arranged in the film-forming chamber for placing the thereon a substrate to be processed, the stage being disposed inside the film-forming chamber in a manner moveable up and down; and capable of freely going up and down so that the distance between the shower head and the substrate to be processed (S/S distance) satisfies the following relation;~~

$$25\text{mm} \leq \text{S/S distance} \leq 35 \text{ mm,}$$

~~and a supply port disposed at the peripheral portion on the bottom face of the gas-mixing chamber supplying the gas mixture prepared in the gas mixing chamber directly to the top face of the shower head such that the gas mixture prepared in the gas-mixing chamber and fed to the shower head through the peripheral portion on the top face of the shower head flows towards the central portion of the shower head, wherein~~

~~an exhaust port for discharging the an exhaust gas from inside the film-forming chamber is formed in, the discharge port being disposed on a side wall of the film-forming chamber at a position located and below the a level of the stage at a time of film formation, the discharge port being so constructed and arranged that the exhaust gas generated in a space defined by the shower head and the top face of the stage is discharged from the discharge port through a clearance between the side wall of the film-forming chamber and the stage; and~~

~~a gas mixture prepared in the gas-mixing chamber being introduced into the film-forming chamber via the shower head, thereby forming a film on the substrate to be processed,~~

~~wherein a supply port communicated from the gas-mixing chamber to the shower head to thereby supply the gas mixture is disposed above the shower head and on a diametrical extension line of the shower head, the supply port being so arranged and constructed that the gas mixture supplied from the gas-mixing chamber flows from a peripheral exterior on the top face of the shower head toward a central portion along the top face thereof an up position and having an opening extending in a direction that is parallel relative to the direction in which the stage is raised and lowered, and wherein the distance between the shower head and the substrate to be processed (S/S distance) and a diameter of the shower head satisfies the following relation:~~

$$\text{(S/S distance)} \times 5 < \text{(diameter of the shower head)} < \text{(S/S distance)} \times 10,$$

~~and wherein the diameter of the shower head satisfies the following relation:~~

$$200\text{mm} \leq \text{diameter of the shower head} \leq 250\text{mm}.$$

Claim 2 **(Canceled)**.

3. **(Currently Amended)** The film-forming apparatus as set forth in claim 1 ~~or~~ 2, wherein when the flow rate of the gas mixture is large, the shower conductance is small and the gas mixture is injected into the film-forming chamber from the central portion of the shower head (hereunder referred to as "central gas injection") upon the formation of a film, the apparatus is so designed that it comprises a shower head having a large diameter, that the distance between the shower head and the substrate to be processed is increased or that a shower head having a large diameter is used and the distance between the shower head and the substrate to be processed is increased, to thus prevent the central gas injection of the gas mixture and to make the manner of a gas injection of the gas mixture uniform.

4. **(Currently Amended)** The film-forming apparatus as set forth in claim 1 ~~or~~ 2, wherein when the flow rate of the gas mixture is small, the shower conductance is large and the gas mixture is injected into the film-forming chamber from a shower head and into a region above a substrate to be processed from the periphery of the shower head (hereunder referred to as "peripheral gas injection") upon the formation of a film, the apparatus is so designed that it comprises a shower head having a small diameter, that the distance between the shower head and the substrate to be processed is reduced or that a shower head having a small diameter is used and the distance between the shower head and the substrate to be processed is reduced, to thus prevent the peripheral gas injection of the gas mixture and to make the manner of the gas injection of the gas mixture uniform.

5. **(Previously Presented)** The film-forming apparatus as set forth in claim 1, wherein the inner diameter of the film-forming chamber and the diameter of the shower head satisfy the following relation:

$(\text{diameter of the shower head}) \times 1.5 < (\text{inner diameter of the film-forming chamber}) < (\text{diameter of the shower head}) \times 2.5.$

6. **(Previously Presented)** The film-forming apparatus as set forth in claim 5, wherein the pressure in the film-forming chamber, the diameter of the shower head and the overall flow rate of gases upon the formation of the film satisfy the following relations, respectively:

a) $2 \text{ Torr} < (\text{pressure in the film-forming chamber}) < 10 \text{ Torr}$

b) $\text{diameter of the substrate to be processed} < (\text{diameter of the shower head}) \times 1.5$ and

c) $2500 \text{ sccm} < (\text{overall flow rate of gases}) < 7000 \text{ sccm}.$

Claim 7 **(Canceled).**

8. **(Previously Presented)** The film-forming apparatus as set forth in claim 1, wherein the pressure in the film-forming chamber, the diameter of the shower head and the overall flow rate of gases upon the formation of the film satisfy the following relations, respectively:

a) $2 \text{ Torr} < (\text{pressure in the film-forming chamber}) < 10 \text{ Torr}$

b) $\text{diameter of the substrate to be processed} < (\text{diameter of the shower head}) \times 1.5$ and

c) $2500 \text{ sccm} < (\text{overall flow rate of gases}) < 7000 \text{ sccm}.$

9. **(Previously Presented)** The film-forming apparatus as set forth in claim 1, wherein the clearance for exhaustion satisfies the relation represented by the following equation:

$$0.02 \text{ m}^3/\text{s} < \text{Exhaustion Conductance} < 0.08 \text{ m}^3/\text{s}.$$

10. **(Previously Presented)** The film-forming apparatus as set forth in claim 9, wherein the pressure in the film-forming chamber, the diameter of the shower head and the overall flow rate of gases upon the formation of the film satisfy the following relations, respectively:

- a) $2 \text{ Torr} < (\text{pressure in the film-forming chamber}) < 10 \text{ Torr}$
- b) $\text{diameter of the substrate to be processed} < (\text{diameter of the shower head}) \times 1.5$ and
- c) $2500 \text{ sccm} < (\text{overall flow rate of gases}) < 7000 \text{ sccm}.$

11. **(Previously Presented)** The film-forming apparatus as set forth in claim 1, wherein a gas ring is disposed at the periphery of the top face of the film-forming chamber so that an inert gas, which is not directly involved in the film formation, can uniformly be introduced into the film-forming chamber through the gas ring and along the inner surface of the side wall of the film-forming chamber.

Claim 12 **(Canceled)**.

13. **(Previously Presented)** A film-forming apparatus, which comprises a load-lock chamber for stocking wafers conveyed from a wafer cassette in the atmospheric conditions; a film-forming chamber; a conveyer chamber positioned between the load-lock chamber and the film-forming chamber; a gas-mixing chamber

for admixing a raw gas and a reactive gas positioned on the upstream side of the film-forming chamber; a shower head arranged on the top face of the film-forming chamber; and a stage arranged in the film-forming chamber for placing a substrate to be processed and capable of freely going up and down, in which a gas mixture prepared in the gas-mixing chamber is introduced into the film-forming chamber through the shower head to thus form a film on the substrate, wherein an exhaust port for discharging the exhaust gas from the film-forming chamber is formed in a side wall of the film-forming chamber at a position located below a level of the stage at an up position and having an opening extending in a direction that is parallel relative to the direction in which the stage is raised and lowered, and wherein the apparatus being characterized in that it is so designed that it can satisfy the requirements as set forth in claim 1.